LESSON TITLE: DRIVING EMERGENCIES

A. TRAINING OBJECTIVE

TASK: Demonstrate knowledge of procedures to handle driving emergencies.

CONDITIONS: Given instruction in a classroom.

STANDARD: Correctly answer verbal questions when called upon.

B. INTERMEDIATE TRAINING. None.

C. ADMINISTRATIVE INSTRUCTIONS

1. Training time: Recommended instructional time is 1.0 hour.

2. Training location: Scheduled classroom.

3. Training type: Conference.

4. Students: Scheduled personnel.

5. Principal and assistant instructors required: One primary instructor for each class of 20 students.

6. Training aids and equipment: Overhead projector, transparencies, and screen.

7. References: FM 21-305 and TC 21-305-100.

D. SEQUENCE OF ACTIVITY

1. **INTRODUCTION**.

a. **Interest Device**. Emergencies, by definition, happen suddenly - there is little time for evaluation and decision making. As a result, emergencies often lead to panic. However, correct responses to most emergency situations can be learned by thinking through possible emergency situations and mentally rehearsing appropriate responses.

b. **Tie-in**. You might never have an emergency. But, no one is perfect. Chances are something will happen that you do not expect. If you are prepared, you will be able to react correctly and fast enough to avoid an accident.

c. **Lesson Objective**.

ACTION: After this lesson the student will know the procedures to handle driving emergencies.

CONDITIONS: Given instruction in a classroom.

STANDARD: Correctly answer verbal questions when called upon.

d. **Procedures**.

(1) ***Explanation***.

(2) ***Summary***.

2. **EXPLANATION**.

Transparency 4-141

TRANSITION: Many newer vehicles are equipped with an ABS. The ABS is an advanced electronic braking system that allows the driver to retain control of the vehicle even after slamming on the brakes. The ABS keeps the wheels from locking and prevents the ensuing skid. The ABS can save lives when used correctly, but the system is only as good as the driver. Drivers who do not know how to use the system are endangering themselves and others. Using the ABS **incorrectly** can increase the chances of having an accident.

a. **Using and Understanding the ABS**. Here is how the ABS works. Let us say the road is wet and you are driving safely. Suddenly an animal jumps out in front of you and you slam on the brakes. Here is what happens with the ABS:

- A computer senses the wheels are slowing down.
- If one of the wheels is about to stop rolling, the computer will separately work the brakes at each front wheel and at the rear wheels.
- The ABS can change the brake pressure faster than any driver could.
- The computer is programmed to make the most of available tire and road conditions. You can steer around the obstacle while braking hard.
- As you brake, your computer keeps receiving updates on wheel speed and controls braking pressure accordingly.

(1) Still need reaction time. Remember, using anti-lock brakes does not change the time you need to get your foot up to the brake pedal. If you get too close to the vehicle in front of you, you will not have time to apply your brakes if that vehicle suddenly slows or stops. Always leave enough room up ahead to stop, even though you have anti-lock brakes.

(2) To use the ABS:

- Do not pump the brakes.
- Just hold the brake pedal down and let the ABS work for you.
- You may feel the brakes vibrate, or you may notice some noise, but this is normal.

Transparency 4-142

(3) Braking in emergencies.

- Use the ABS when needed.
- With the ABS, you can steer and brake at the same time.
- In many emergencies, steering can help you more than even the very best braking.

(4) Rear wheel ABS only.

- Some vehicles (mostly light trucks) are equipped with the ABS on the rear wheels only.
- With these vehicles you must remember that the front wheels have conventional brakes and they can lock up or slide causing you to lose steering control.
- If this happens, release enough pressure on the brakes to get the wheels rolling again so that you can steer.

Transparency 4-143

TRANSITION: Roads that are safe under normal conditions are dangerous when slippery. Ice and snow can easily cause you to skid. Traveling too fast, driving over bridges and hills, around curves, or braking to a stop are dangerous on slippery roads. When driving through standing water, tires may lose contact with the road surface and hydroplane.

b. **Handling Slippery Surfaces**. If you find yourself in any reduced traction situation, do the following:

(1) Do not make any quick changes in speed or direction.

(2) Take your foot gradually off the gas pedal.

(3) Shift to neutral.

(4) Keep the steering wheel straight. If you have to turn, do it slowly and only as much as you have to.

(5) If you have to use your brakes, push brakes to friction point and release.

Transparency 4-144

(6) Do not try to stop rapidly or quickly until your tires are gripping the road again.

(7) If the vehicle begins to skid, here is how to get out of the skid:

- Stay off the brake. If you hit the brakes, your wheels will lock, and that makes the skid worse.
- Turn quickly. Turn the steering wheel in the direction you want the vehicle to go. This lines the front of the vehicle up with the back.
- Countersteer - turn back the other way. As soon as the vehicle begins to straighten out, turn the wheel back the other way so that the vehicle will not turn too far. If you do not turn the wheel back in time, you will start a new skid.
- Continue to correct your steering, left and right, until you recover from the skid.
- Turn back to straight ahead.

(8) When under control, return the transmission to a driving gear so that the engine speed matches the road surface.

(9) If you cannot control your vehicle on a slippery surface, try to find something to stop you. Try to get the wheels on dry pavement or on the shoulder of the road, or slowly edge into a snowbank or bushes.

Transparency 4-145

TRANSITION: Four small patches of rubber, altogether about one square foot, provide all the contact your vehicle has with the road. When it looks as if a collision may happen, many drivers simple hit the brakes. This locks the wheels and puts the vehicle into a skid. Braking might be the right thing to do, but it is not the only option.

c. **Avoiding Collisions**. To avoid a collision, a driver can stop quickly, turn quickly, or speed up quickly.

(1) ***Stopping quickly***. The quickest way to stop on a smooth hard road surface is to press down hard on the brake pedal to just short of lockup. This procedure allows you to continue steering. Here is the way to do it:

- Push the brake pedal down firmly to just short of lockup.
- If the vehicle begins to skid, let up slightly on the brake pedal.

- Squeeze down on the brake pedal again to a point just short of lockup and hold.
- Continue this squeezing action until the vehicle has stopped.
- This method of braking is much more effective than pumping the brakes, which can be dangerous if your vehicle has an ABS.

Transparency 4-146

(2) ***Turning quickly***. If you cannot stop in time to avoid hitting something, steer around it. Running off the road is usually safer than hitting another vehicle. If you must brake while you turn, squeeze the brake pedal gently to lessen the chance of a skid, particularly if you are turning onto a soft shoulder. At 45 MPH, it takes less than half the time and distance to steer around a problem than to stop a vehicle completely. To turn quickly -

- Keep both hands on the steering wheel. Hold it correctly by placing your hands on opposite sides of the wheel at the 3 and 9 o'clock positions. Get used to holding the steering wheel this way all the time. (For vehicles equipped with air bags, it is better to hold the wheel lower like the 4 and 8 o'clock positions. The reason for this is so that on impact, the air bag does not push your hands away from the steering wheel.)
- To avoid an obstacle, turn the wheel 180 degrees (1/2 turn) away from the obstacle, very quickly, without removing either hand.
- As you clear the obstacle, turn the wheel 360 degrees (one full turn) in the opposite direction.
- As you center in the lane, turn the wheel 180 degrees back to the normal hand position.
- Once you have turned away from something, you must be ready to turn back again. Many people steer away from one collision only to end up in another.

(3) ***Speeding up quickly***. Sometimes it is necessary to speed up quickly to avoid a collision. This may happen when another vehicle is about to hit you from the side or from behind.

- In a vehicle with a manual transmission, shift quickly into a lower gear and push the gas pedal to the floor.
- If the vehicle has an automatic transmission, just push the gas pedal all the way to the floor and the vehicle will shift gears automatically.

d. **Handling Vehicle Emergencies**. No matter how well you take care of your vehicle, there is still a chance of vehicle failure. Transparencies 4-147 through 4-150 identify some of the more serious vehicle failures and what to do about them.

NOTE: Briefly discuss the items presented on transparencies 4-147 through 4-150.

Transparency 4-147

(1) ***Brake failure***.

Transparency 4-148

(2) ***Blowout***.

Transparency 4-149

(3) ***Power steering failure***.

(4) ***Headlight failure***.

Transparency 4-150

(5) ***Accelerator sticks***.

(6) ***Hood latch failure***.

Transparency 4-151

e. **Emergencies and Restraint Systems**. You are in better shape to handle any emergency if you are wearing your seat belt and shoulder strap. If you wear just a seat belt or shoulder strap your chances of coming out of a collision alive are about twice as good than if you were using no restraint. Your chances are even better when your vehicle is equipped with facial air bag(s) and you are wearing a seat belt and shoulder strap.

(1) ***Safety belts***.

(a) They keep you from being thrown from the vehicle. Your chances of surviving a crash are up to five times greater if you stay inside the protection of your vehicle.

(b) They slow your body down with your vehicle. If you are not wearing a safety belt and have a collision, here is what happens:

- Your vehicle stops but you keep going at the same speed you were traveling, until you hit the dashboard or windshield.
- At 30 MPH, this is like hitting the ground from the top of a three-story building.

(c) Safety belts also help the driver control the vehicle. Here is how:

- They keep you from moving around on the seat at sudden stops and turns. They keep you behind the wheel no matter what happens. You cannot control your vehicle if you slide from behind the wheel.
- They keep you seated behind the steering wheel. This allows you to steer after a collision.
- If you were struck from the side, the impact could push you across the seat. Belts and straps keep you in position so you can control the vehicle.

(d) They do help you stay alert by keeping you from slouching while you drive. They also help to keep you from getting tired by cutting down on the effort needed to keep your body in the seat as the vehicle bounces or turns.

(e) The only way safety belts can do all these things is if they are buckled. There is no time to buckle them when an emergency happens. Buckle up before you start the vehicle.

(f) Use safety belts properly. Keep the lap belt fairly tight, but comfortably across your lap and hips. Adjust the shoulder strap just loose enough to let your fist go between the belt and your chest. If you wear your safety belts like this, they will be comfortable and they will give you plenty of protection.

(g) Modern safety belts are better designed than earlier models. As a result, safety belts may be used more easily and comfortably than before.

(h) The value of safety belts is so great that states have enacted mandatory seat belt laws.

Transparency 4-152

(2) ***Facial air bags***. Recently manufactured vehicles have a facial air bag for the driver, while newer vehicles also have an air bag for the front seat passenger. Air bags reduce facial injuries when used with safety belts. Here are the most important things to know about the facial air bag system:

- You can be severely injured or killed in a crash if you are not wearing your safety belt - even if you have an air bag. Wearing your safety belt during a crash helps reduce your chance of hitting things inside the vehicle or being ejected from it.
- The air bag is only a "supplemental restraint." That is, it works with safety belts but does not replace them.
- Air bags are designed to work only in moderate to severe crashes where the front of your vehicle hits something. They are not designed to inflate at all in rollovers or rear, side, or low-speed frontal crashes.
- Everyone in your vehicle, including the driver, should wear a safety belt properly - whether or not there is an air bag for that person.
- Air bags inflate with great force, faster than the blink of an eye. If you are too close to an inflating air bag, it could seriously injure you. Safety belts help keep you in position for an air bag inflation in a crash. Always wear your safety belt, even with an air bag, and sit as far back as you can while still maintaining control of your vehicle.

(3) ***Side-impact air bags***. Most recently, some vehicle manufacturers have been installing side-impact air bags on their vehicles. As the name suggests, they are suppose to protect occupants from collision from the side. There is not enough data at this time to determine if or how much safer a vehicle is that is equipped with side-impact air bags.

(4) ***Head restraints***. Padded head restraints reduce the risk of whiplash in the event of a collision from the rear. If your vehicle has adjustable head restraints, adjust them to the proper height. Normally, the top of the head restraint should be slightly above your ears or at the back of your head, not at the base or curve of your neck.

(5) ***Child safety seats***. If you have small children, or frequently drive with small children, buying a safety seat would be the ideal thing to do. All states have mandatory child restraint laws which require children, generally up to age four, to be secured in car seats and older children with safety belts.

Transparency 4-153

f. **Protecting Yourself in a Collision**. You may not always be able to avoid a collision. Try everything you can to keep from getting hit. If nothing works, try to keep the injury from being too serious. Through the application of controlled braking and steering, try to collide with the object at an angle.

(1) ***Hit from the rear***. If you are about to be hit from the rear:

- Be ready to apply your brake so that you will not be pushed into another vehicle.
- If your vehicle has head restraints, press the back of your head firmly against the head restraint.

(2) ***Hit from the side***. If you are about to be hit from the side:

- Accelerate so that you will be hit behind the rear wheels.
- Get ready to steer quickly so that if you spin around you can try to control the vehicle.
- Brace yourself with the steering wheel to keep from being thrown against the side of the vehicle.

(3) ***Hit from the front***. If you are about to be hit from the front:

- If you are wearing a shoulder strap, use your arms and hands to protect your face.
- If you are not using a shoulder strap (lap belt only), throw yourself across the seat so that you do not hit the steering column or the windshield.

3. **SUMMARY**.

Transparency 4-154

a. **Recap Main Points**. Call on students to answer questions presented on Transparency 4-154.

b. **Allow for Questions**.

c. **Clarify Questions**.

d. **Give Closing Statement**. The best way to handle an emergency is to keep it from happening in the first place. That sounds simple, but most emergencies happen because of driver error. If one or more drivers or other roadway users do something unsafe, an emergency can occur. Obviously, the more emergencies we meet, the greater the risk of collision. Sooner or later, if involved in enough emergencies, a driver will have an accident. Experienced drivers reduce the likelihood of emergencies by employing the skills and knowledge presented in this lesson.

E. SAFETY RESTRICTIONS. None.

F. ADDITIONAL COMMENTS AND INFORMATION. None.